

## **ABSTRACT OF THE DISCLOSURE**

A method and apparatus for depositing a low dielectric constant film by reaction of an organo silane compound and an oxidizing gas. The oxidized organo silane film has excellent barrier properties for use as a liner or cap layer adjacent other dielectric layers. The oxidized organo silane film can also be used as an etch stop or an intermetal dielectric layer for fabricating dual damascene structures. The oxidized organo silane films also provide excellent adhesion between different dielectric layers. A preferred oxidized organo silane film is produced by reaction of methyl silane,  $\text{CH}_3\text{SiH}_3$ , and  $\text{N}_2\text{O}$ .